- Trulias, R. and Skolnick, P. (1990) Functional antagonists at the NMDA receptor complex exhibit antidepressant actions. Eur. J. Pharmacol. 185, 1-10.
- Tucker, et al. (1951) Apparent ionization exponents of 4-hydroxyquinoline, 4-methoxyquinoline and N-methyl-54-quinoline; evaluation of lactam-lactam tautomerism. J. Am Chem. Soc. 73, 1923-1928.
- Vida, et al. (1977) Anticonvulsants, pp. 176-182. Academic Press, New York, NY.
- Watkins, et al. (1990) Structure-activity relationships in the 10 development of excitatory amino acid receptor agonists and competitive antagonists. *Trends Pharmacol Sci.* 11, 25-33.
- White, et al. (1989) Glycine binding to rat cortex and spinal cord: binding characteristics and pharmacology reveal 15 distinct populations of sites. J. Neurochem. 53, 503-512.
- Wong, et al. (1986) The anticonvulsant MK-801 is a potent N-methyl-D-aspartate antagonist. Proc. Natl. Acad. Sci. USA 83. 7104-7108.
- Wright. (1984) A simple one-pot conversion of alkyl 4-oxo-20 1.4-dihydroquinoline-2-carboxylates to 4-aminoquinoline-2-carboxylates using reactive isocyanates. Synthesis. 1058-1061.

Young, et al. (1988) Science 241, 981-983.

It is to be understood that the form of the invention 25 described is a preferred embodiment thereof and that various changes and modifications may be made therein without departing from the spirit of the invention or scope as defined in the following claims.

Having set forth the nature of the invention, what is 30 claimed is:

1. A compound of the formula:

$$X_{1}$$

$$X_{2}$$

$$X_{3}$$

$$X_{40}$$

$$X_{1}$$

$$X_{1}$$

$$X_{1}$$

$$X_{2}$$

$$X_{3}$$

$$X_{40}$$

$$X_{40}$$

wherein:

- R₁, is selected from the group consisting of hydrogen. ⁴⁵ ethyl, methyl, n-butyl, or phenyl;
- R₂ is selected from the group consisting of hydrogen. ethyl. methyl. n-butyl. phenyl. or 3-methoxyphenyl:
- R_3 is selected from the group consisting of ethyl. methyl. 50 or hydrogen:
- X₁ is selected from the group consisting of hydrogen, fluoro, chloro, bromo, iodo, nitro, cyano, fluoromethyl, any branched or straight-chained alkyl group containing from 1 to 4 carbon atoms, any branched or straight-chained alkoxy group containing from 1 to 4 carbon atoms, any branched or straight-chained alkoxy carbonyl group containing from 1 to 4 carbon atoms, or any branched or straight-chained acyl group containing from 1 to 4 carbon atoms.
- X₂ is selected from the group consisting of hydrogen, fluoro, chloro, bromo, iodo, nitro, cyano, fluoromethyl, any branched or straight-chained alkyl group containing from 1 to 4 carbon atoms, any branched or straight-chained alkoxy group containing from 1 to 4 carbon 65 atoms, any branched or straight-chained alkoxy carbonyl group containing from 1 to 4 carbon atoms, or any

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branched or straight-chained acyl group containing from 1 to 4 carbon atoms:

X₃ is selected from the group consisting of hydrogen. fluoro, chloro, bromo, iodo, nitro, cyano, fluoromethyl, any branched or straight-chained alkyl group containing from 1 to 4 carbon atoms, any branched or straight-chained alkoxy group containing from 1 to 4 carbon atoms, any branched or straight-chained alkoxy carbonyl group containing from 1 to 4 carbon atoms, or any branched or straight-chained acyl group containing from 1 to 4 carbon atoms; and

X₄ is selected from the group consisting of hydrogen. fluoro, chloro, bromo, iodo, nitro, cyano, fluoromethyl, any branched or straight-chained alkyl group containing from 1 to 4 carbon atoms, any branched or straight-chained alkoxy group containing from 1 to 4 carbon atoms, any branched or straight-chained alkoxy carbonyl group containing from 1 to 4 carbon atoms, or any branched or straight-chained acyl group containing from 1 to 4 carbon atoms.

- 2. A compound according to claim 1. wherein:
- R₁ is ethyl:
- R₂ is ethyl: and
- R, is methyl.
 - 3. A compound according to claim 1. wherein:
 - R, is ethyl:
 - R₂ is ethyl; and
- R, is ethyl.
 - 4. A compound according to claim 1. wherein:
 - R, is ethyl;
 - R₂ is ethyl; and
- R₃ is hydrogen.
 - 5. A compound according to claim 1. wherein:
 - R₁ is methyl:
 - R₂ is methyl; and
- R, is ethyl.
- 6. A compound according to claim 1. wherein:
 - R₁ is methyl;
 - R₂ is methyl; and
 - R, is hydrogen.
- 45 7. A compound according to claim 1. wherein:
 - R, is n-butyi;
 - R₂ is n-butyl: and
 - R₃ is ethyl.
- 8. A compound according to claim 1, wherein:
 - R, is n-butyl;
 - R₂ is n-butyl; and
 - R, is hydrogen.
 - 9. A compound according to claim 1. wherein:
- R_i is phenyl:
 - R₂ is phenyl; and
 - R3 is ethyl.
 - ·10. A compound according to claim 1, wherein:
- 60 R₁ is phenyl:
 - R₂ is phenyl: and
 - R, is hydrogen.
 - 11. A compound according to claim 1, wherein:
- R₁ is phenyl:
 - R₂ is phenyl: and
 - R, is methyl.

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12. A compound according to claim 1.	. wherein:	i.	claim	to	according	pound	COL	Α	12
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R, is phenyl:

R₂ is 3-methoxyphenyl; and

R, is ethyl.

13. A compound according to claim 1, wherein:

R₁ is phenyl: R₂ is methoxyphenyl: and R₂ is hydrogen.

14. A compound according to claim 1. wherein:

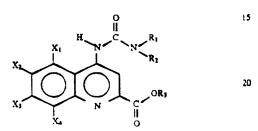
X_t is chlorine:

X₂ is hydrogen:

X, is chlorine: and

X4 is hydrogen.

15. A compound of the formula:



wherein:

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- R₁ is selected from the group consisting of hydrogen or any branched or straight-chained alkyl groups containing from 1 to 6 carbon atoms;
- R₂ is selected from the group consisting of hydrogen or any branched or straight-chained alkyl groups containing from 1 to 6 carbon atoms:
- R₃ is selected from the group consisting of ethyl. methyl. or hydrogen:
- X₁ is selected from the group consisting of hydrogen. 35 fluoro. chloro. bromo. iodo. nitro. cyano. fluoromethyl. any branched or straight-chained alkyl group contain-

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ing from 1 to 4 carbon atoms, any branched or straightchained alkoxy group containing from 1 to 4 carbon atoms, any branched or straight-chained alkoxy carbonyl group containing from 1 to 4 carbon atoms, or any branched or straight-chained acyl group containing from 1 to 4 carbon atoms;

- X₂ is selected from the group consisting of hydrogen. fluoro, chloro, bromo, iodo, nitro, cyano, fluoromethyl, any branched or straight-chained alkyl group containing from 1 to 4 carbon atoms, any branched or straight-chained alkoxy group containing from 1 to 4 carbon atoms, any branched or straight-chained alkoxy carbonyl group containing from 1 to 4 carbon atoms, or any branched or straight-chained acyl group containing from 1 to 4 carbon atoms;
- X, is selected from the group consisting of hydrogen. fluoro, chloro, bromo, iodo, nitro, cyano, fluoromethyl, any branched or straight-chained aikyl group containing from 1 to 4 carbon atoms, any branched or straight-chained alkoxy group containing from 1 to 4 carbon atoms, any branched or straight-chained alkoxy carbonyl group containing from 1 to 4 carbon atoms, or any branched or straight-chained acyl group containing from 1 to 4 carbon atoms.
- X₄ is selected from the group consisting of hydrogen. fluoro, chloro, bromo, iodo, nitro, cyano, fluoromethyl, any branched or straight-chained alkyl group containing from 1 to 4 carbon atoms, any branched or straight-chained alkoxy group containing from 1 to 4 carbon atoms, any branched or straight-chained alkoxy carbonyl group containing from 1 to 4 carbon atoms, or any branched or straight-chained acyl group containing from 1 to 4 carbon atoms.